What is claimed is:

1. A micromachined apparatus comprising:

a frame having a substantially rectangular perimeter;

a plurality of elongated stress relief members arranged substantially in a rectangular pattern outside of the frame perimeter, each stress relief member having at least one substrate anchor substantially at its intersection with a line through the midpoints of a pair of opposite frame sides; and

a plurality of box suspensions coupling the corners of the frame to the plurality of stress relief members, each box suspension including a substantially rectangular array of box flexures, the box flexures at a first corner of the array coupled to the frame, the box flexures at a second corner opposite the first corner coupled respectively to the ends of a pair of stress relief members but not to one another, the box suspension further including a diagonal brace coupled between third and fourth corners of the array, the box flexures at the second corner further coupled respectively about a pivot point to a plurality of support flexures, the plurality of support flexures having a substrate anchor substantially at an intersection with a line through the first and second corners.

2. The apparatus of claim 1, wherein the frame has a substantially square perimeter and the plurality of elongated stress relief members are arranged substantially in a square pattern outside of the frame perimeter.

3. The apparatus of claim 1, wherein the rectangular array is substantially square.

4. The apparatus of claim 1, wherein the ratios of the sides of the rectangular array are substantially the same as those of the rectangular perimeter and rectangular pattern such that a straight line from the intersection point of the

lines through the midpoints of each pair of opposite frame sides through its corner also passes through diagonally opposite corners of the rectangular array.

5. The apparatus of claim 1, wherein the plurality of stress relief members consists of four stress relief members, each extending substantially between two pivot points.

6. The apparatus of claim 1, wherein the box flexures are designed to align substantially with a rectilinear grid for defining the apparatus.

7. The apparatus of claim 1, wherein each stress relief member includes a plurality of substrate anchors.

8. The apparatus of claim 1, wherein each stress relief member includes a single elongated substrate anchor.

9. The apparatus of claim 1, wherein the diagonal brace substantially restricts motion of the frame other than rotation of the frame about the intersection point of the lines through the midpoints of each pair of opposite frame sides.

10. The apparatus of claim 1, wherein the frame includes finger structures that extend outward toward the stress relief members.

11. The apparatus of claim 10, further comprising:

a plurality of sensing fingers positioned between the frame fingers within the space between the frame and the stress relief members.

12. The apparatus of claim 1, wherein the frame, stress relief members, and box suspensions are micromachined from a common piece of material.

13. The apparatus of claim 1, wherein the apparatus is a micromachined gyroscope.

14. A micromachined apparatus comprising a substantially rectangular array of box flexures, the box flexures at a first corner of the array coupled to a frame, the box flexures at a second corner opposite the first corner coupled respectively to the ends of a pair of stress relief members but not to one another, the box suspension further including a diagonal brace coupled between third and fourth corners of the array, the box flexures at the second corner further coupled respectively at a pivot point to a plurality of support flexures, the plurality of support flexures having a substrate anchor substantially at an intersection with a line through the first and second corners.

15. The apparatus of claim 14, wherein the rectangular array is substantially square.

16. The apparatus of claim 14, wherein the plurality of stress relief members consists of four stress relief members, each extending substantially between two pivot points.

17. The apparatus of claim 14, wherein the box flexures are designed to align substantially with a rectilinear grid for etching the box flexures.

18. The apparatus of claim 14, wherein the diagonal brace substantially restricts motion of the frame other than rotation of the frame about an intersection point of lines through the midpoints of each of a pair of opposite frame sides.

19. A method for reducing stresses in a micromachined apparatus, the method comprising:

forming a plurality of micromachined structures from a common material, the micromachined structures including a frame suspended from a plurality of stress relief members by a plurality of box suspensions, each box suspension including a substantially rectangular array of box flexures, the box flexures at a first corner of the array coupled to the frame, the box flexures at a second corner opposite the first corner coupled respectively to the ends of a pair of stress relief members but not to one another, the box suspension further including a diagonal brace coupled between third and fourth corners of the array, the box flexures at the second corner further coupled respectively about a pivot point to a plurality of support flexures;

anchoring each of the plurality of stress relief members to a substrate substantially at an intersection of the stress relief member with a line through the centers of opposite sides of the frame; and

anchoring the support flexures of each of the plurality of box suspensions to the substrate using a single anchor substantially at an intersection with a line through opposite corners of the frame.

20. The method of claim 19, wherein the rectangular array is substantially square.

21. The method of claim 19, wherein the plurality of stress relief members consists of four stress relief members, each extending substantially between two pivot points.

22. The method of claim 19, wherein the box flexures are designed to align substantially with a rectilinear grid for etching the box flexures.

23. The method of claim 19, wherein the diagonal brace substantially restricts motion of the frame other than rotation of the frame about an intersection point of lines through the midpoints of each of a pair of opposite frame sides.

24. A micromachined apparatus comprising:

a substrate;

a frame supporting a number of resonating structures;

suspension means for suspending the frame over and parallel to the substrate, the suspension means substantially restricting movement of the frame relative to the substrate to only rotational movement about an axis normal to the substrate; and

stress reducing means for reducing stresses in the suspension means.

25. The apparatus of claim 24, wherein the suspension means comprises:

a plurality of box suspensions, each box suspension coupled at a corner of the frame.

26. The apparatus of claim 24, wherein the stress reducing means comprises:

a plurality of stress reducing members, each stress reducing member anchored to the substrate substantially at an intersection point with a line through the center of opposite frame sides.